



SURAT KETERANGAN

No. Ket-068/EP6505/2016-S8

DENGAN INI MENERANGKAN BAHWA :

NAMA : AKHMAD FAZ FERRO
TEMPAT / TGL LAHIR : MURUNG PUDAK, 27 JANUARI 1995
N I M : 20120130140
MAHASISWA : UNIVERSITAS MUHAMMADIYAH
YOGYAKARTA
JURUSAN : TEKNIK MESIN
TELAH MENGIKUTI : TUGAS AKHIR
BAGIAN : PRODUCTION OPERATION
ASSET 5 TANJUNG FIELD
DARI TANGGAL : 01 AGUSTUS S/D 06 SEPTEMBER 2016

Tanjung, 06 September 2016
Tanjung HR Assistant Manager



LEMBAR PENGESAHAN

LAPORAN PENELITIAN
**ANALISA PERFORMA DAN EFISIENSI SISTEM POMPA INJEKSI PADA
INSTALASI WATERFLOOD E.O.R DI P.T PERTAMINA EP FIELD TANJUNG**

Dengan lembar pengesahan ini, dinyatakan bahwa :

Nama : Akhmad Faz Fero

NIM : 20120130140

**Jurusan Teknik Mesin Fakultas Teknik
Universitas Muhammadiyah Yogyakarta**

Telah Menyelesaikan Penelitian di :

PT. PERTAMINA EP FIELD TANJUNG

Jl. Minyak No.1 Murung Pudak, Tanjung, Tabalong

Dilaksanakan pada tanggal 01 Agustus 2016 – 10 September 2016

Mengetahui

PT. PERTAMINA EP FIELD TANJUNG

Pembimbing Lapangan



SAMUDJI
SUPERVISOR WTP & WIP

Fungsi Production Operation



HENDRO PRATOMO
KEPALA FUNGSI PRODUCTION
OPERATION

15-Jun-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,300	2,300				800	5,400	5,400
Average Load, KW	2,150	2,170				700	5,020	5,020
Power Factor	0.72	0.71				0.78	n/a	
Gas Consumption, MMSCFD	0.586	0.612					1.198	
Diesel Consumption, Liters						5,025	5,025	5,025

POWER CONSUMPTION

PARAMETER	KWh	KW
Production, KWh	73,300	3,054
Plants, KWh	26,600	1,108
Facilities, KWh	20,400	850
TOTALS	120,300	5,013

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD				0.040	0.065	0.11	1.87
Gas Comp. Production, MMSCFD				0.710	1.268	1.98	
Gas Compressor Suction Pressure, psig:	8.10		Tekanan gas LP.				

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW	PRODUCTION	ON/OFF	AVG KW	BASE LOAD CALCULATION	KW
WIP Injection Pump	ON	776	Substation 06	OFF	-	Safe Load (One TG Unit)	3700
WIP Booster Pump "C & D"	ON	150	Substation 07	OFF	-	Total Load on Load Shed	1,749
WTP (FEEDER "B")	OFF	-	Substation 08	OFF	-	Load Swing	300
ST 19, Camp	ON	594	BS. 3	OFF	-	Base Load	3,571
ST 09, Camp	ON	229	BS.10	OFF	-		SAFE
Fresh Water Pump	OFF	-					
TOTAL Non-Prod on Load Shed:		1,749	TOTAL Production on Load Shed:		0		

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBLs	CONSUMPTION	BBLs
Raw Water	69,320	WIP	2,609
Fresh Water	63,850	Manunggul	12,527
		WTP Sand Filter Backwash	959
		WTP Utility Usage	2,655
		Housing, Gen Fac, BS IV & CD	25,800
		Pengisian Mobil Tangki Air	2,520
		BS. I, BS. II, BS. III, BSV & CD	6,188
		Sec Rec. BS VI & CD	2,600
		Drilling	2,300
		Other	5,692
		TOTAL:	63,850

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBLs
First Stock	8,235
Received From WTP	2,609
Final Stock	8,850

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbls	17,264	1,1320	19,543
South Header, bbls	20,706	1,0041	20,791
TOTAL INJECTION, bbls:			40,335

Fresh Water Injected (WIP estimate): 1,994
 Produced Water Injected (Measured at WIP): 38,341
 Percent of Produced Water in Total Injection Fluid: 95.1%

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.02	OK
pH, Deaerator Outlet	-	= 7.0	7.0	OK
River Water Level	M asl	> 4.2	12.3	OK
River Intake Pump Suction Head	M	> 0.7	2.5	OK
River Water pH	-	= 7.0	9.9	OK

INJECTION RATES PER ZONE FOR ENTIRE FIELD

ZONE	BBLs
A	11,070
B	7,303
C	7,659
D	7,679
E	3,285
F	3,052
TOTAL (based on Well Head Meter Readings):	40,049
Difference (WIP - Well Head Meters):	286
Percent Difference between WIP & Well Head Measurements:	0.7%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	400	125	7	18
mg/l	36.3	11.3	0.6	1.6

* Produced Water Production in PPP today : 43,241 BWPD
 * Produced Water from PPP to WIP at 00.00 : 38,341 Bbls

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).
 2. NEW WTP : - River Water Intake Pumps "A & B" Running
 - Water Feed Pumps "A, B, & D" Running
 - Transfer Pump "B" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)
 3. NEW WIP : - North Header Pressure = 534 Psig
 - South Header Pressure = 336 Psig
 - Injection Pump "B" Running
 - Booster Pumps "A, C & D" Running
 4. INJECT WELL : * T.13 Casing Stop Injeksi (Program Ops)
 * T.041 Stop injeksi Line Casing (Program PE)
 * T.097 Stop injeksi (Program PE)
 5. P.PLANT : * Δ P TG.100 : 2.1 WC (SHD 6,6) Running.
 * Δ P TG.200 : 1.6 WC (SHD 6,6) Running.
 * Cold Well Pump No. 1 Running
 * Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 * Waukesha Engine No.1, Stop (Stand by).
 * Waukesha Engine No.2, Stop (Stand by).
 * Gas Compressor Ajax.1, Stop (Stand by).
 * Gas Compressor Ajax.2, Running On Load.
 * Gas Compressor Ajax.3, Running On Load.
 * Gas Compressor Ariel, Stop (Overhaul).
- * Turbidity air injeksi jam 06.00 : NTU.
 * Supply fresh water to Manunggul from WIP meter readings : 18,715 Bbls
- * Temperature :
 at 06.00 AM at 02.00 PM at 10.00 PM
 - Produced Water Line in WIP 92 °F 104 °F 96 °F
 - Discharge Fresh Wtr Line from WIP Tank 86 °F 88 °F 87 °F
 - Mixing WIP Line (Header Injection Line) 94 °F 102 °F 96 °F
 - Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * Drilling Pump, Stop (Stand by)
 * Fresh Water Pump " A & B ", Stop (Stand by)
- * Stop sumbu injeksi T-011, T-017, T-041, T-070, T-092 dan T-093 karena Pipa 10" Main Line Injeksi Jalur Selatan bocor di crossिंगan dekat T-093.

Approved:

WTP/WIP_SUPERVISOR

07-Jul-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,300		1,900			1,000	5,200	5,200
Average Load, KW	2,120		1,800			940	4,860	4,860
Power Factor	0.72		0.75			0.78	n/a	
Gas Consumption, MMSCFD	0.611		0.291			6,465	0.902	
Diesel Consumption, Liters			12,991				19,456	19,456

POWER CONSUMPTION

PARAMETER	KWh	KW
Production, KWh	72,000	3,000
Plants, KWh	26,550	1,106
Facilities, KWh	17,900	746
TOTALS:	116,450	4,852

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD			0.049		0.066	0.12	1.29
Gas Comp. Production, MMSCFD			0.538		0.868	1.41	
Gas Compressor Suction Pressure, psig.			12.78				

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW
WIP Injection Pump	ON	768
WIP Booster Pump "C & D"	ON	150
WTP (FEEDER "B")	OFF	-
ST 19, Camp	ON	567
ST 09, Camp	ON	201
Fresh Water Pump	OFF	-
TOTAL Non-Prod on Load Shed:		1,686

PRODUCTION	ON/OFF	AVG KW
Substation 06	OFF	-
Substation 07	OFF	-
Substation 08	OFF	-
BS_3	OFF	-
BS.10	OFF	-
TOTAL Production on Load Shed:		0

BASE LOAD CALCULATION	KW
Safe Load (One TG Unit)	3700
Total Load on Load Shed	1,686
Load Swing	300
Base Load	3,474
	SAFE

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBLS
Raw Water	65,520
Fresh Water	60,050

CONSUMPTION	BBLS
WIP	454
Manunggal	9,041
WTP Sand Filter Backwash	961
WTP Utility Usage	2,795
Housing, Gen Fac, BS IV & CD	26,900
Pengisian Mobil Tangki Air	2,690
BS I, BS II, BS III, BSV & CD	6,134
Sec Rec, BS VI & CD	2,690
Drilling	2,400
Other	5,985
TOTAL:	60,050

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBLS
First Stock	9,240
Received From WTP	454
Final Stock	9,210

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbbls	15,456	1.1320	17,497
South Header, bbbls	22,388	1.0041	22,480
TOTAL INJECTION, bbbls:			39,977

Fresh Water Injected (WIP estimate): 484
 Produced Water Injected (Measured at WIP): 39,493
 Percent of Produced Water in Total Injection Fluid: 96.8%

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.03	OK
pH, Deaerator Outlet	--	= 7.0	7.4	
River Water Level	M asl	> 4.2	12.0	OK
River Intake Pump Suction Head	M	> 0.7	2.2	OK
River Water pH	--	= 7.0	9.9	

INJECTION RATES PER ZONE FOR ENTIRE FIELD

ZONE	BBLS
A	12,978
B	6,717
C	6,426
D	7,608
E	3,086
F	2,812
TOTAL (based on Well Head Meter Readings):	39,627
Difference (WIP - Well Head Meters):	350
Percent Difference between WIP & Well Head Measurements:	0.9%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	400	120	6	17
mg/l	38.4	11.5	0.6	1.6

* Produced Water Production in PPP today : 43,909 BWPD
 * Produced Water from PPP to WIP at 06.00 : 39,493 Bbls

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).

2. NEW WTP : - River Water Intake Pumps "A & B" Running
 - Water Feed Pumps "A, B, & C" Running
 - Transfer Pump "B" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)

3. NEW WIP : - North Header Pressure = 567 Psig
 - South Header Pressure = 760 Psig
 - Injection Pump "B" Running
 - Booster Pumps "A, C & D" Running
 - Drilling Pump, Stop (Stand by)
 - Fresh Water Pump "A & B", Stop (Stand by)
 - WIP Pump "D" Stop (perbaikan)

4. INJECT WELL : * T.013 Casing Stop Injeksi (Program Ops)
 * T.041 Stop injeksi Line Casing (Program PE)
 * T.097 Stop injeksi (Program PE)

5. P.PLANT : * Δ P TG.100 : 2.2 WC (SHD 6.5) Running.
 * Δ P TG.200 : 1.6 WC (SHD 6.5) Stop (Stand by).
 * Cold Well Pump No. 1 Running
 * Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 * Waukesha Engine No.1, Stop (Stand by).
 * Waukesha Engine No.2, Stop (Stand by).
 * Gas Compressor Ajax.1, Running On Load.
 * Gas Compressor Ajax.2, Stop (Stand by).
 * Gas Compressor Ajax.3, Running On Load.
 * Gas Compressor Ariel, Stop (Overhaul).

* Turbidity air injeksi jam 06.00 : NTU.
 * Supply fresh water to Manunggal from WIP meter readings : 15,175 Bbls

Temperature :	at.06.00 AM	at.02.00 PM	at.10.00 PM
- Produced Water Line in WIP	92 °F	106 °F	96 °F
- Discharge Fresh Wtr Line from WIP Tank	87 °F	92 °F	91 °F
- Mixing WIP Line (Header Injection Line)	92 °F	104 °F	95 °F

* Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * 01.20 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 02.36 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.19 Ksc.
 * 05.40 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 0.9 Ksc.
 * 06.43 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.2 Ksc.
 * 05.00 s/d 07.17 Crew Sewatama isi tangki solar Genset Rental, total = 3.895 Liter.
 * 08.38 Start crank TG 200.
 * 08.43 Stop crank TG 200.
 * 08.45 Start TG 200 Liquid Fuel, gagal indikasi "Gas Fuel Valve Check Failure".
 * 08.64 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 0.95 Ksc.
 * 10.20 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.25 Ksc.
 * 10.22 Start TG 200 Gas Fuel, OK, setelah crew instrument service Selenoid Gas Vent.
 * 10.38 Stop TG 200 Stand by.
 * 10.43 Start crank TG 200.
 * 10.48 Stop crank TG 200.
 * 11.15 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 0.9 Ksc.
 * 11.17 s/d 15.35 Terima solar dari Patraniaga 30.00 Liter, stock awal = 318 Bbl, stock akhir = 516 Bbl
 * 13.45 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.25 Ksc.
 * 14.55 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 16.30 s/d 18.30 Crew Sewatama isi tangki solar Genset Rental, total = 2.980 Liter.
 * 17.20 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.2 Ksc.
 * 19.00 TG Rental Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc, stock solar = 482 Bbl.
 * 21.35 TG Rental Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.15 Ksc.
 * 23.45 TG Rental Transfer Liquid Fuel to Gas Fuel, b gas LP 1.0 KSC, stock solar = 481 Bbl.

Approved: _____
 WIP/WIP. SUPERVISOR

12-Jun-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,000	2,100				1,020	5,120	8,120
Average Load, KW	1,940	2,020				1,000	4,960	4,960
Power Factor	0.71	0.70				0.78	n/a	
Gas Consumption, MMSCFD	0.560	0.542				1.102		
Diesel Consumption, Liters		2,735				6,430	9,165	9,165

POWER CONSUMPTION

PARAMETER	KWh	KW
Production, KWh	71,160	2,965
Plants, KWh	28,390	1,183
Facilities, KWh	19,300	804
TOTALS:	118,850	4,952

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD	1.102		0.007	0.040	0.043	1.19	0.50
Gas Comp. Production, MMSCFD			0.118	0.789	0.786	1.69	
Gas Compressor Suction Pressure, psig:			9.94				

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW
WIP Injection Pump	ON	720
WIP Booster Pump " C & D "	ON	150
WTP (FEEDER "B")	OFF	-
ST 19 Camp	ON	567
ST 09 Camp	ON	210
Fresh Water Pump	OFF	-
TOTAL Non-Prod on Load Shed:		1,647

PRODUCTION	ON/OFF	AVG KW
Substation 06	OFF	-
Substation 07	OFF	-
Substation 08	OFF	-
BS_3	OFF	-
BS_10	OFF	-
TOTAL Production on Load Shed:		0

BASE LOAD CALCULATION	KW
Safe Load (One TG Unit)	3700
Total Load on Load Shed	1,647
Load Swing	300
Base Load	3,613
	SAFE

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBLs
Raw Water	65,450
Fresh Water	60,245

CONSUMPTION	BBLs
WIP	3,514
Manunggal	10,916
WTP Sand Filter Backwash	959
WTP Utility Usage	2,632
Housing, Gen Fac. BS IV & CD	25,642
Pengisian Mobil Tangki Air	2,475
BS I, BS II, BS III, BSV & CD	3,607
Sec Rec. BS VI & CD	2,582
Drilling	2,277
Other	5,641
TOTAL:	60,245

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBLs
First Stock	9,480
Received From WTP	3,514
Final Stock	9,450

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbls	18,212	1,1320	20,617
South Header, bbls	20,130	1,0041	20,213
TOTAL INJECTION, bbls:			40,830

Fresh Water Injected (WIP estimate): 3,544
 Produced Water Injected (Measured at WIP): 37,286
 Percent of Produced Water in Total Injection Fluid: 91.3%

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.02	OK
pH, Deaerator Outlet	-	= 7.0	6.8	OK
River Water Level	Masi	> 4.2	12.3	OK
River Intake Pump Suction Head	M	> 0.7	2.5	OK
River Water pH	-	= 7.0	10.0	OK

INJECTION RATES PER ZONE FOR ENTIRE FIELD (From Well Head Meter Readings)

ZONE	BBLs
A	12,426
B	7,574
C	6,873
D	8,163
E	2,892
F	2,585
TOTAL (based on Well Head Meter Readings):	40,534

Difference (WIP - Well Head Meters): 296
 Percent Difference between WIP & Well Head Measurements: 0.7%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	400	110	7	18
mg/l	38.5	10.6	0.7	1.7

* Produced Water Production in PPP today: 41,670 BWPD
 * Produced Water from PPP to WIP at 00.00: 37,286 Bbls

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).

2. NEW WTP : - River Water Intake Pumps "A & B" Running
 - Water Feed Pumps "A, B, & D" Running
 - Transfer Pump "B" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)

3. NEW WIP : - North Header Pressure = 434 Psig
 - South Header Pressure = 592 Psig
 - Injection Pump "C" Running
 - Booster Pumps "A, C & D" Running

4. INJECT WELL : - T.13 Casing Stop injeksi (Program Ops)
 - T.041 Stop injeksi Line Casing (Program PE)

5. P. PLANT : - A P TG.100 : 2.1 WC (SHD 6.6) Running.
 - A P TG.200 : 1.8 WC (SHD 6.6) Running.
 - Cold Well Pump No. 1 Running
 - Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 - Waukesha Engine No.1, Stop (Stand by).
 - Waukesha Engine No.2, Stop (Stand by).
 - Gas Compressor Ajax.1, Stop (Repair).
 - Gas Compressor Ajax.2, Running On Load.
 - Gas Compressor Ajax.3, Running On Load.
 - Gas Compressor Ariel, Stop (Overhaul).

* Turbidity air injeksi jam 06.00 : NTU.
 * Supply fresh water to Manunggal from WIP meter readings : 14,523 Bbls

* Temperature :
 at 06.00 AM at 02.00 PM at 10.00 PM
 - Produced Water Line in WIP 95 °F 86 °F 96 °F
 - Discharge Fresh Wtr Line from WIP Tank 86 °F 88 °F 87 °F
 - Mixing WIP Line (Header Injection Line) 95 °F 92 °F 97 °F

* Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * Drilling Pump, Stop (Stand by)
 * Fresh Water Pump " A & B ", Stop (Stand by)

* Penggantian penyisihan Pipa Main Line injeksi WIP jalur selatan yang bocor di dekat T-11 sebanyak 2 joint

02.15 : Gc. Ajax 3 Trip, Indikasi Under Speed.
 TG. 200 Switch Gas To Liquid Fuel, Tekanan Gas ke Turbine 174 Psig (Cenderung Turun) & Gas Lp = 0.7 Ksc
 02.20 : Start Gc. Ajax 3, lanjut On Load // Gc. Ajax 2
 Diketahui RPM Gc. Ajax 3 langsung turun, Stop Normal Gc. Ajax 3 (Info Crew Mekanik)
 04.15 : Start Gc. Ajax 1
 04.40 : Gc. Ajax 1 On Load // Gc. Ajax 2
 04.45 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.5 Ksc
 04.30 s/d 06.00 : Sewatama isi tangki solar, total = 3,400 Liter
 08.35 : Start Gc. Ajax 3, setelah crew mekanik melakukan perbaikan
 08.40 : Gc. Ajax 3 On Load // Gc. Ajax 1 & Gc. Ajax 2 "Gagal".
 09.00 : Start Gc. Ajax 3 "ok"
 09.05 : Gc. Ajax 3 On Load // Gc. Ajax 1 & Gc. Ajax 2
 09.15 : Lepas Beban Gc. Ajax 1
 09.16 : Stop Normal Gc. Ajax 1
 16.40 s/d 18.00 : Sewatama isi tangki solar, total = 3,200 Liter

Approved:
 WTP/WIP SUPERVISOR

18-Jul-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,400	1,400	1,500			800	6,100	6,100
Average Load, KW	2,350	1,250	660			570	4,830	4,830
Power Factor	0.74	0.71	0.72			0.78	n/a	
Gas Consumption, MMSCFD	0.629	0.389	0.319				1.337	
Diesel Consumption, Liters		5,263	421			4,045	9,729	9,729

POWER CONSUMPTION

PARAMETER	KWh	KW
Production KWh	69,900	2,913
Plants, KWh	25,640	1,068
Facilities, KWh	20,200	842
TOTALS:	115,740	4,823

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax 1	Ajax 2	Ajax 3	TOTAL	Sirkula
Gas Consumption, MMSCFD			0.050		0.065	0.12	1.32
Gas Comp. Production, MMSCFD			0.453		0.979	1.43	
Gas Compressor Suction Pressure, psig		7.10					

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW	PRODUCTION	ON/OFF	AVG KW	BASE LOAD CALCULATION	KW
WIP Injection Pump	ON	637	Substation 06	OFF	-	Safe Load (One TG Unit)	3700
WIP Booster Pump "C & D"	ON	150	Substation 07	OFF	-	Total Load on Load Shed	1,555
WTP (FEEDER "B")	OFF	-	Substation 08	OFF	-	Load Swing	300
ST 19, Camp	ON	567	BS_3	OFF	-	Base Load	3,575
ST 09, Camp	ON	201	BS.10	OFF	-		
Fresh Water Pump	OFF	-					SAFE
TOTAL Non-Prod on Load Shed:		1,555	TOTAL Production on Load Shed:		0		

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBLs	CONSUMPTION	BBLs
Raw Water	67,850	WIP	4,675
Fresh Water	62,547	Manunggul	12,905
		WTP Sand Filter Backwash	960
		WTP Utility Usage	2,631
		Housing, Gen Fac. BS IV & CD	25,342
		Pengisian Mobil Tangki Air	2,181
		BS I, BS II, BS III, BSV & CD	6,603
		Sec Rec. BS VI & CD	2,453
		Drilling	2,217
		Other	2,580
		TOTAL:	62,547

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBLs
First Stock	8,982
Received From WTP	4,675
Final Stock	9,030

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.05	OK
pH, Deaerator Outlet	-	= 7.0	7.1	OK
River Water Level	M asi	> 4.2	12.3	OK
River Intake Pump Suction Head	M	> 0.7	2.5	OK
River Water pH	-	= 7.0	10.0	OK

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	405	125	6	16
mg/l	37.6	11.6	0.6	1.5

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbls	12,654	1,1320	14,325
South Header, bbls	17,233	1,6041	17,304
TOTAL INJECTION, bbls:			31,629

Fresh Water Injected (WIP estimate): 4,627
 Produced Water Injected (Measured at WIP): 27,002
 Percent of Produced Water in Total Injection Fluid: 85.4%

INJECTION RATES PER ZONE FOR ENTIRE FIELD (From Well Head Meter Readings)

ZONE	BBLs
A	11,103
B	5,005
C	4,945
D	5,937
E	2,330
F	2,023
TOTAL (based on Well Head Meter Readings)	31,343
Difference (WIP - Well Head Meters):	286
Percent Difference between WIP & Well Head Measurements:	0.9%

* Produced Water Production in PPP today : 42,774 BWPD
 * Produced Water from PPP to WIP at 00.00 : 27,002 Bbls

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).

2. NEW WTP :
 - River Water Intake Pumps "A & B" Running
 - Water Feed Pumps "A, B, & C" Running
 - Transfer Pump "B" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)

3. NEW WIP :
 - North Header Pressure = 613 Psig
 - South Header Pressure = 766 Psig
 - Injection Pump "C" Running
 - Booster Pumps "A, C & D" Running
 - Drilling Pump, Stop (Stand by)
 - Fresh Water Pump "A & B", Stop (Stand by)
 - WIP Pump "D" Stop (Stand by)

4. INJECT WELL :
 - T.013 Casing Stop Injeksi (Program Ops)
 - T.041 Stop Injeksi Line Casing (Program PE)
 - T.097 Stop Injeksi (Program PE)

5. P. PLANT :
 - Δ P TG.100 : 2.2 WC (SHD 6.5) Running.
 - Δ P TG.200 : 1.6 WC (SHD 6.5) Standby.
 - Cold Well Pump No.1 Running
 - Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 - Waukesha Engine No.1, Stop (Stand by).
 - Waukesha Engine No.2, Stop (Stand by).
 - Gas Compressor Ajax.1, Running On Load.
 - Gas Compressor Ajax.2, Stop (Stand by).
 - Gas Compressor Ajax.3, Running On Load.
 - Gas Compressor Ariel, Stop (Overhaul).

* Turbidity air injeksi jam 06.00 : NTU. 19,508 Bbls
 * Supply fresh water to Manunggul from WIP meter readings : 19,508 Bbls

* Temperature :
 - Produced Water Line in WIP at 06.00 AM 91 °F, at 02.00 PM 96 °F, at 10.00 PM 93 °F
 - Discharge Fresh Wtr Line from WIP Tank 87 °F, 89 °F, 88 °F
 - Mixing WIP Line (Header Injection Line) 94 °F, 99 °F, 96 °F

* Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * 00.55 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc
 * 02.30 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.27 Ksc
 * 03.15 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc
 * 08.00 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.22 Ksc - Buka supply Gas To SPU Manunggul *.
 * 09.25 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc
 * Tutup Supply Gas To SPU Manunggul, Tekanan SPU Manunggul 14 Ksc
 * 13.17 : TG. 200 Trip, Indikasi " Reverse Kw ". Load Shedding Aktif : ST. 09, ST. 19 WIP B dan C
 * 13.25 : On Breaker ST. 09 & ST. 19
 * 13.30 : Start TG. Rental, Gas Fuel.
 * 13.35 : TG. Rental Synchron To System, Load 1000 Kw
 * 13.42 : Genset Sewatama Lepas Beban, Lanjut Stop Normal " Standby "
 * 13.50 : On Load Shedding TG. 100 & TG. Rental
 * 14.00 : Crew Instrument selesai service Control Gas Valve & Regulator TG. 200 dan Crew Mekanik selesai ganti Battery Detroit
 * 14.20 : Start Emergency Detroit " ok ". Pemanasan 1/2 Jam
 * 15.18 : TG. Rental Switch Gas To Liquid Fuel, Gas Lp = 0.58 Ksc, persiapan Test Start TG. 200
 * 15.20 : Start TG. 200 Gas Fuel " ok "
 * 15.25 : TG. 200 Switch Gas To Liquid Fuel, ok
 * 15.30 : TG. 200 Switch Liquid To Gas Fuel, ok
 * 15.35 : Stop Normal TG. 200 " Standby "
 * 15.40 : Start Crank TG. 200
 * 15.45 : Stop Crank TG. 200
 * 15.48 : TG. Rental Switch Gas To Liquid Fuel, Gas Lp = 1.0 Ksc
 Crew GWS sisip pipa 16" Suction WIP (BOCOR)

Approved:
 WTP/WIP, SUPERVISOR

20-Jun-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,600	2,600				1,020	6,220	6,220
Average Load, KW	2,410	2,500				1,000	5,910	5,910
Power Factor	0.73	0.72				0.78	n/a	
Gas Consumption, MMSCFD	0.431	0.701					1,132	
Diesel Consumption, Liters	6,486					6,465	12,951	12,951

POWER CONSUMPTION

PARAMETER	KWh	KW
Production KWh	72,500	3,021
Plants, KWh	46,770	1,949
Facilities, KWh	23,500	979
TOTALS	142,770	5,949

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD			0.025	0.019	0.063	0.11	1.61
Gas Comp. Production, MMSCFD			0.190	0.305	1.224	1.72	
Gas Compressor Suction Pressure, psig:			4.29				

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW	PRODUCTION	ON/OFF	AVG KW	BASE LOAD CALCULATION	KW
WIP Injection Pump	ON	1317	Substation 06	OFF	-	Safe Load (One TG Unit)	3700
WIP Booster Pump " C & D "	ON	150	Substation 07	OFF	-	Total Load on Load Shed	2,547
WTP (FEEDER "B")	OFF	-	Substation 08	OFF	-	Load Swing	300
ST 19, Camp	ON	713	BS_3	OFF	-	Base Load	3,663
ST 09, Camp	ON	201	BS.10	OFF	-		SAFE
Fresh Water Pump	ON	166					
TOTAL Non-Prod on Load Shed		2,547	TOTAL Production on Load Shed:		0		

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBLs
Raw Water	99,659
Fresh Water	84,518

CONSUMPTION	BBLs
WIP	6,593
Manunggal	27,804
WTP Sand Filter Backwash	960
WTP Utility Usage	2,855
Housing, Gen Fac, BS IV & CD	27,423
Pengisian Mobil Tangki Air	2,588
BS.I,BS.II,BS.III,BSV & CD	5,999
Sec Rec. BS VI & CD	2,652
Drilling	2,329
Other	5,235
TOTAL:	84,518

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbls	20,651	1.1320	23,378
South Header, bbls	27,836	1.0041	27,951
TOTAL INJECTION, bbls:			51,328

Fresh Water Injected (WIP estimate): 6,505
 Produced Water Injected (Measured at WIP): 44,823
 Percent of Produced Water in Total Injection Fluid: 87.3%

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBLs
First Stock	8,877
Received From WTP	6,593
Final Stock	8,965

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.16	OK
pH, Deaerator Outlet	--	= 7.0	7.1	
River Water Level	M asi	> 4.2	14.3	OK
River Intake Pump Suction Head	M	> 0.7	4.5	OK
River Water pH	--	= 7.0	9.7	

INJECTION RATES PER ZONE FOR ENTIRE FIELD

ZONE	BBLs
A	15,016
B	9,601
C	8,472
D	10,476
E	3,890
F	3,353
TOTAL (based on Well Head Meter Readings):	50,808
Difference (WIP - Well Head Meters):	520
Percent Difference between WIP & Well Head Measurements:	1.0%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	600	175	8	23
mg/l	37.9	11.1	0.5	1.5

* Produced Water Production in PPP today : 42,240 BWPD
 * Produced Water from PPP to WIP at 00.00 : 44,823 Bbls

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).

2. NEW WTP : - River Water Intake Pumps " A, B & B " Running
 - Water Feed Pumps " A, B, C, & D " Running
 - Transfer Pump " B & C " Running
 - Air Compressor " A " Running
 - Utility Pump " A " Running
 - Vacuum Pumps " A & B " Stop (Stand by)

3. NEW WIP : - North Header Pressure = 835 Psig
 - South Header Pressure = 814 Psig
 - Injection Pump " B & C " Running
 - Booster Pumps " A, C & D " Running

4. INJECT WELL : * T.13 Casing Stop Injeksi (Program Ops)
 * T.841 Stop injeksi Line Casing (Program PE)
 * T.087 Stop injeksi (Program PE)

5. P.PLANT : * Δ P TG.100 : 2.2 WC (SHD 6,8) Running.
 * Δ P TG.200 : 1.5 WC (SHD 6,8) Running.
 * Cold Well Pump No.1 Running
 * Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 * Waukesha Engine No.1, Stop (Stand by).
 * Waukesha Engine No.2, Stop (Stand by).
 * Gas Compressor Ajax.1, Stop (Stand by).
 * Gas Compressor Ajax.2, Running On Load.
 * Gas Compressor Ajax.3, Running On Load.
 * Gas Compressor Ariel, Stop (Overhaul).

* Turbidity air injeksi jam 06.00 : NTU.
 * Supply fresh water to Manunggal from WIP meter readings : 33,803 Bbls

* Temperature :
 - Produced Water Line in WIP at 06.00 AM 95 °F at 02.00 PM 96 °F at 10.00 PM 96 °F
 - Discharge Fresh Wtr Line from WIP Tank 85 °F 86 °F 86 °F
 - Mixing WIP Line (Header Injection Line) 94 °F 98 °F 95 °F

* Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * Drilling Pump, Stop (Stand by)
 * Fresh Water Pump " A ", Running
 * Fresh Water Pump " B ", Stop (Stand by)
 * T.41 line Annulus melepak flow Analyzer dan dipasang ke T.55 line Annulus.
 * Perbaikan line pendingin mesh seal river intake pump 2" bocor. Di WTP

* 00.56 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC, Solar 667 bbl
 * 03.50 TG 100 Transfer Gas Fuel to Liquid Fuel, gas LP 0.25 KSC, Solar 667 bbl
 * 05.00 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC, Solar 658 bbl
 * 05.00 s/d 07.10 Crew Sewatama isi tangki solar Genset Rental, total = 3210 ltr
 * 07.15 TG 100 Transfer Gas Fuel to Liquid Fuel, gas LP 0.25 KSC, Solar 636 bbl
 * 08.30 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC, Solar 630 bbl
 * 09.00 s/d 09.30 Start & Stop Emergency Detroit (Pemanasan)
 * 11.12 TG 100 Transfer Gas Fuel to Liquid Fuel, gas LP 0.4 KSC
 * 11.50 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC
 * 11.55 GC, Ajax 2 Trip, Indikasi No. 16 "High Temp Cylinder No 2" - TG 100 Manual Switch to Liquid Fuel
 * 12.05 Start GC Ajax 1
 * 12.10 GC, Ajax 1 On Load Paralel Ajax 3
 * 12.15 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.05 KSC
 * 16.30 s/d 18.33 Crew Sewatama isi tangki solar Genset Rental, total = 3065 ltr
 * 17.13 TG 100 Transfer Gas Fuel to Liquid Fuel, gas LP 0.3 KSC
 * 18.13 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC
 * 20.50 TG 100 Transfer Gas Fuel to Liquid Fuel, gas LP 0.25 KSC, Solar 591 Bbl
 * 22.05 TG 100 Transfer Liquid Fuel to Gas Fuel, gas LP 1.0 KSC, Solar 582 bbl

Approved:
 WTP/WIP SUPERVISOR

26-Jul-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,750	2,650				850	6,250	6,250
Average Load, KW	2,530	2,550				810	6,000	6,000
Power Factor	0.74	0.74				0.78	n/a	
Gas Consumption, MMSCFD	0.668	0.554					1.222	
Diesel Consumption, Liters		6,207				5,495	11,702	11,702

POWER CONSUMPTION

PARAMETER	KWh	KW
Production, KWh	74,100	3,088
Plants, KWh	45,710	1,905
Facilities, KWh	24,000	1,000
TOTALS:	143,810	5,992

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD			0.050		0.068	0.12	1.18
Gas Comp. Production, MMSCFD			0.523		0.779	1.30	
Gas Compressor Suction Pressure, psig:			3.80				

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW
WIP Injection Pump	ON	1280
WIP Booster Pump " C & D "	ON	150
WTP (FEEDER "B")	OFF	-
ST 19. Camp	ON	777
ST 09. Camp	ON	229
Fresh Water Pump	ON	168
TOTAL Non-Prod on Load Shed:		2,604

PRODUCTION	ON/OFF	AVG KW
Substation 06	OFF	-
Substation 07	OFF	-
Substation 08	OFF	-
BS. 3	OFF	-
BS.10	OFF	-
TOTAL Production on Load Shed:		0

BASE LOAD CALCULATION	KW
Safe Load (One TG Unit)	3700
Total Load on Load Shed	2,604
Load Swing	300
Base Load	3,696
SAFE	

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BBL.S
Raw Water	88,990
Fresh Water	83,550

CONSUMPTION	BBL.S
WIP	2,521
Manunggal	29,334
WTP Sand Filter Backwash	960
WTP Utility Usage	2,695
Housing, Gen Fac, BS IV & CD	27,200
Pengisian Mobil Tangki Air	2,475
BS I, BS II, BS III, BSV & CD	7,811
Sec Rec, BS VI & CD	2,460
Drilling	2,375
Other	5,719
TOTAL:	83,550

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbls	20,440	1.1320	23,139
South Header, bbls	27,534	1.0041	27,648
TOTAL INJECTION, bbls:			50,786

Fresh Water Injected (WIP estimate): 2,806
 Produced Water Injected (Measured at WIP): 47,980
 Percent of Produced Water in Total Injection Fluid: 94.5%

WIP STOCK TANK (FRESH WATER)

PARAMETER	BBL.S
First Stock	9,357
Received From WTP	2,521
Final Stock	9,072

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deaerator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deaerator Outlet	NTU	< 5.00	0.09	OK
pH, Deaerator Outlet	--	= 7.0	7.2	OK
River Water Level	M asi	> 4.2	13.0	OK
River Intake Pump Suction Head	M	> 0.7	3.2	OK
River Water pH	--	= 7.0	9.6	OK

INJECTION RATES PER ZONE FOR ENTIRE FIELD (From Well Head Meter Readings)

ZONE	BBL.S
A	16,841
B	8,060
C	7,798
D	10,164
E	3,977
F	3,502
TOTAL (based on Well Head Meter Readings):	50,343
Difference (WIP - Well Head Meters):	443
Percent Difference between WIP & Well Head Measurements:	0.9%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	600	160	8	22
mg/l	42.4	11.3	0.6	1.6

* Produced Water Production in PPP today : 41,334 BWPD
 * Produced Water from PPP to WIP at 00.00 : 47,980 Bbls

ACTIVITIES

- 1. OLD WTP : - Stop plant (tidak dioperasikan lagi).
- 2. NEW WTP : - River Water Intake Pumps "A & C" Running
 - Water Feed Pumps "A, B, & C" Running
 - Transfer Pump "B & C" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)
- 3. NEW WIP : - North Header Pressure = 335 Psig
 - South Header Pressure = 274 Psig
 - Injection Pump "B & C" Running
 - Booster Pumps "A, C & D" Running
 - Drilling Pump, Stop (Stand by)
 - Fresh Water Pump "A" Running
 - Fresh Water Pump "B", Stop (Stand by)
- 4. INJECT WELL : * T.013 Casing Stop Injeksi (Program Ops)
 * T.041 Stop Injeksi Line Casing (Program PE)
 * T.097 Stop Injeksi Line Cs & Tb. (Flowback)
- 5. P. PLANT : * A P TG.100 : 2.2 WC (SHD 6.5) Running.
 * A P TG.200 : 1.6 WC (SHD 6.5) Running.
 * Cold Well Pump No.1 Running
 * Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 * Waukesha Engine No.1, Stop (Stand by).
 * Waukesha Engine No.2, Stop (Stand by).
 * Gas Compressor Ajax.1, Running On Load.
 * Gas Compressor Ajax.2, Stop (Stand by).
 * Gas Compressor Ajax.3, Running On Load.
 * Gas Compressor Ariel, Stop (Overhaul).

* Turbidity air injeksi jam 06.00 : NTU.
 * Supply fresh water to Manunggal from WIP meter readings : 37,145 Bbls
 * Temperature : at 06.00 AM at 02.00 PM at 10.00 PM
 - Produced Water Line in WIP 93 °F 102 °F 96 °F
 - Discharge Fresh Wtr Line from WIP Tank 87 °F 87 °F 87 °F
 - Mixing WIP Line (Header Injection Line) 94 °F 102 °F 94 °F
 - Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * 00.25 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 02.02 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.25 Ksc.
 * 03.02 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 05.10 TG : 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.27 Ksc.
 * 05.67 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 04.23 s/d 06.13 : Crew Sewatama isi tangki solar Genset Rental, total = 2.755 Liter.
 * 08.30 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.3 Ksc.
 * 09.15 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 12.00 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.3 Ksc.
 * 12.45 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 15.32 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.3 Ksc.
 * 16.10 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc..
 * 16.00 s/d 17.40 : Crew Sewatama isi tangki solar Genset Rental, total = 2.600 Liter.
 * 18.25 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.3 Ksc.
 * 19.10 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.
 * 21.25 : TG 200 Transfer Gas Fuel to Liquid Fuel, tekanan gas LP 0.27 Ksc.
 * 22.17 : TG 200 Transfer Liquid Fuel to Gas Fuel, tekanan gas LP 1.0 Ksc.

Approved:
 WTP/WIP. SUPERVISOR

01-Aug-16 POWER & WATER FACILITIES DAILY REPORT

POWER PRODUCTION

PARAMETER	TG.100	TG.200	TG. Rental	WKS.1	WKS.2	SEWATAMA	GRADE	TOTAL
Peak Load, KW	2,450	2,600				900	5,950	5,950
Average Load, KW	2,320	2,520				850	5,690	5,690
Power Factor	0.73	0.74				0.78	n/a	
Gas Consumption, MMSCFD	0.606	0.541					1.147	
Diesel Consumption, Liters		5,562				5,755	11,317	11,317

POWER CONSUMPTION

PARAMETER	KWh	KW
Production, KWh	72,200	3,008
Plants, KWh	43,520	1,813
Facilities, KWh	20,400	850
TOTALS:	136,120	5,672

GAS CONSUMPTION

PARAMETER	Gensets	Ariel	Ajax.1	Ajax.2	Ajax.3	TOTAL	Sirkula
Gas Consumption, MMSCFD			0.050		0.068	0.12	1.28
Gas Comp. Production, MMSCFD			0.509			0.891	1.40
Gas Compressor Suction Pressure, psig		4.26					

Tekanan gas LP.

LOAD SHED SYSTEM

NON PRODUCTION	ON/OFF	AVG KW
WIP Injection Pump	ON	1310
WIP Booster Pump "C & D"	ON	150
WTP (FEEDER "B")	OFF	-
ST 19, Camp	ON	594
ST 09, Camp	ON	238
Fresh Water Pump	OFF	-
TOTAL Non-Prod on Load Shed:		2,292

PRODUCTION	ON/OFF	AVG KW
Substation 06	OFF	-
Substation 07	OFF	-
Substation 08	OFF	-
BS_3	OFF	-
BS.10	OFF	-
TOTAL Production on Load Shed:		0

BASE LOAD CALCULATION	KW
Safe Load (One TG Unit)	3700
Total Load on Load Shed	2,292
Load Swing	300
Base Load	3,698
SAFE	

FRESH WATER PRODUCTION & CONSUMPTION

PRODUCTION (WTP)	BbLS
Raw Water	68,003
Fresh Water	62,547

CONSUMPTION	BbLS
WIP	2,964
Manunggul	10,741
WTP Sand Filter Backwash	962
WTP Utility Usage	2,812
Housing, Gen Fac. BS IV & CD	25,952
Pengisian Mobil Tangki Air	2,426
BS I, BS II, BS III, BSV & CD	5,913
Sec Rec, BS VI & CD	2,518
Drilling	2,288
Other	5,971
TOTAL:	62,547

WIP STOCK TANK (FRESH WATER)

PARAMETER	BbLS
First Stock	8,440
Received From WTP	2,964
Final Stock	9,054

INJECTION HEADER (WIP DATA)

PARAMETER	MEASURED	CORR	ACTUAL
North Header, bbLS	16,425	1.1320	18,598
South Header, bbLS	27,558	1.0041	27,672
TOTAL INJECTION, bbLS:			46,270

Fresh Water Injected (WIP estimate): 2,350
 Produced Water Injected (Measured at WIP): 43,920
 Percent of Produced Water in Total Injection Fluid: 94.9%

WATER QUALITY

PARAMETER	UNIT	TARGET	MEASURED	STATUS
Oxygen, Deserator Outlet	ppb	< 200	0.00	LOW
Turbidity, Deserator Outlet	NTU	< 5.00	0.05	OK
pH, Deserator Outlet		= 7.0	7.0	OK
River Water Level	Masi	> 4.2	9.8	OK
River Intake Pump Suction Head	M	> 0.7		LOW
River Water pH	--	= 7.0		

INJECTION RATES PER ZONE FOR ENTIRE FIELD (From Well Head Meter Readings)

ZONE	BbLS
A	12,707
B	7,604
C	8,658
D	9,537
E	3,779
F	3,550

TOTAL (based on Well Head Meter Readings): 45,835
 Difference (WIP - Well Head Meters): 435
 Percent Difference between WIP & Well Head Measurements: 0.9%

CHEMICAL CONSUMPTION

PARAMETER	ALUM	SODASH	POLY	HYPO
Usage, KG	395	120	7	16
mg/l	36.6	11.1	0.6	1.5

* Produced Water Production in PPP today : 42,024 BbLD
 * Produced Water from PPP to WIP at 00.00 : 43,920 BbLS

ACTIVITIES

1. OLD WTP : - Stop plant (tidak dioperasikan lagi).
 2. NEW WTP : - River Water Intake Pumps "A & C" Running
 - Water Feed Pumps "A, B, & C" Running
 - Transfer Pump "B" Running
 - Air Compressor "A" Running
 - Utility Pump "A" Running
 - Vacuum Pumps "A & B" Stop (Stand by)
 - River Water Intake Pump "B" Stop (Repair)
 3. NEW WIP : - North Header Pressure = 88 Psig
 - South Header Pressure = 85 Psig
 - Injection Pump "B & C" Running
 - Booster Pumps "A, C & D" Running
 - Drilling Pump, Stop (Stand by)
 - Fresh Water Pump "A & B", Stop (Stand by)
 4. INJECT WELL : * T.013 Casing Stop Injeksi (Program Ops)
 * T.041 Stop injeksi Line Casing (Program PE)
 * T.097 Stop injeksi Line Cs & Tb. (Flowback)
 5. P. PLANT : * A.P TG.100 : 2.2 WC (SHD 6.5) Running.
 * A.P TG.200 : 1.8 WC (SHD 6.5) Running.
 * Cold Well Pump No.1 Running
 * Genset Cat.3512 P.Plant Lama, Stop (perbaikan)
 * Waukesha Engine No.1, Stop (Stand by).
 * Waukesha Engine No.2, Stop (Stand by).
 * Gas Compressor Ajax.1, Running On Load.
 * Gas Compressor Ajax.2, Stop (Stand by).
 * Gas Compressor Ajax.3, Running On Load.
 * Gas Compressor Ariel, Stop (Overhaul).
- * Turbidity air injeksi jam 06.00 : NTU, 16,654 BbLS
 * Supply fresh water to Manunggul from WIP meter readings : at.06.00 AM 95 % at.02.00 PM 105 % at.10.00 PM 98 %
 * Temperature :
 - Produced Water Line in WIP 95 % 105 % 98 %
 - Discharge Fresh Wtr Line from WIP Tank 87 % 88 % 88 %
 - Mixing WIP Line (Header Injection Line) 93 % 103 % 96 %
 - Note : Maximum Temperature of Mixing WIP Line (Header Injection Line) :
 * 02.20 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.24 Ksc
 * 04.00 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc & Stock Solar = 628 Bbl
 * 04.03 s/d 06.03 : Sewatama isi tangki solar, total = 3035 Liter
 * 09.30 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.28 Ksc - Larjut buka gas to SPU Manunggul
 * 10.12 : TG. Rental Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc - Tutup gas to SPU Manunggul
 * 10.30 s/d 11.00 : Start Emergency Detroit Pemanasan
 * 12.55 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.25 Ksc
 * 14.30 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc
 * 16.45 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.25 Ksc
 * 17.27 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc
 * 16.00 s/d 17.50 : Sewatama isi tangki solar, total = 2780 Liter
 * 19.17 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.25 Ksc
 * 20.05 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc, Solar 569 bbl
 * 21.25 : TG. 200 Switch Gas To Liquid Fuel, Gas Lp = 0.28 Ksc
 * 22.20 : TG. 200 Switch Liquid To Gas Fuel, Gas Lp = 1.0 Ksc, Solar 562 bbl

Approved:
 WTP/WIP, SUPERVISOR

RECORD OF WATER INJECT
WATER INJECTION PLANT

MONTH : J U N E 2016

DATE	NEW W.I.P					TOTAL (Bbls)	W.HEAD INJECTION (Bbls)
	FIRST STOCK (Bbls)	RECIEVED (Bbls)	FINAL STOCK (Bbls)	INJECTION (Bbls)			
				Produced Wtr	Fresh Wtr		
1	8,843	2,912	9,308	47,151	2,447	49,598	49,203
2	9,308	2,395	9,356	48,210	2,347	50,557	50,082
3	9,356	3,530	9,312	47,364	3,574	50,938	50,518
4	9,312	3,790	9,165	46,929	3,937	50,866	50,485
5	9,165	4,369	9,232	47,283	4,302	51,585	51,058
6	9,232	2,349	9,400	48,532	2,114	50,646	50,566
7	9,400	3,205	9,300	47,041	3,305	50,346	50,151
8	9,300	2,292	9,350	48,296	2,242	50,538	50,446
9	9,350	3,878	8,900	46,341	4,278	50,619	50,498
10	8,900	10,256	9,470	39,782	10,086	49,868	49,751
11	9,470	6,949	9,480	35,147	6,939	42,086	41,850
12	9,480	3,514	9,450	37,286	3,544	40,830	40,534
13	9,450	3,889	9,350	41,345	3,999	45,344	44,956
14	9,350	1,759	8,235	39,627	2,874	42,501	42,116
15	8,235	2,609	8,850	38,341	1,994	40,335	40,049
16	8,850	1,644	8,745	39,456	1,749	41,205	40,877
17	8,745	1,252	8,870	40,941	1,127	42,068	41,700
18	8,870	5,042	9,355	45,892	4,557	50,449	50,041
19	9,355	4,781	8,877	45,132	5,259	50,391	50,000
20	8,877	6,593	8,965	44,823	6,505	51,328	50,808
21	8,965	8,250	9,534	40,841	7,681	48,522	48,100
22	9,534	4,338	8,963	41,824	4,909	46,733	46,333
23	8,963	1,933	9,214	45,858	1,682	47,540	47,100
24	9,214	1,734	9,233	46,130	1,715	47,845	46,130
25	9,233	1,895	9,220	45,574	1,908	47,482	47,006
26	9,220	2,081	9,512	45,430	1,789	47,219	46,795
27	9,512	2,244	9,540	46,376	2,216	48,592	48,260
28	9,540	274	9,260	47,643	554	48,197	47,956
29	9,260	2,219	9,020	44,626	2,459	47,085	46,879
30	9,020	3,949	9,240	42,781	3,969	46,750	46,505
TOTAL		105,925	275706	1322002	106061	1,428,063	1,416,753

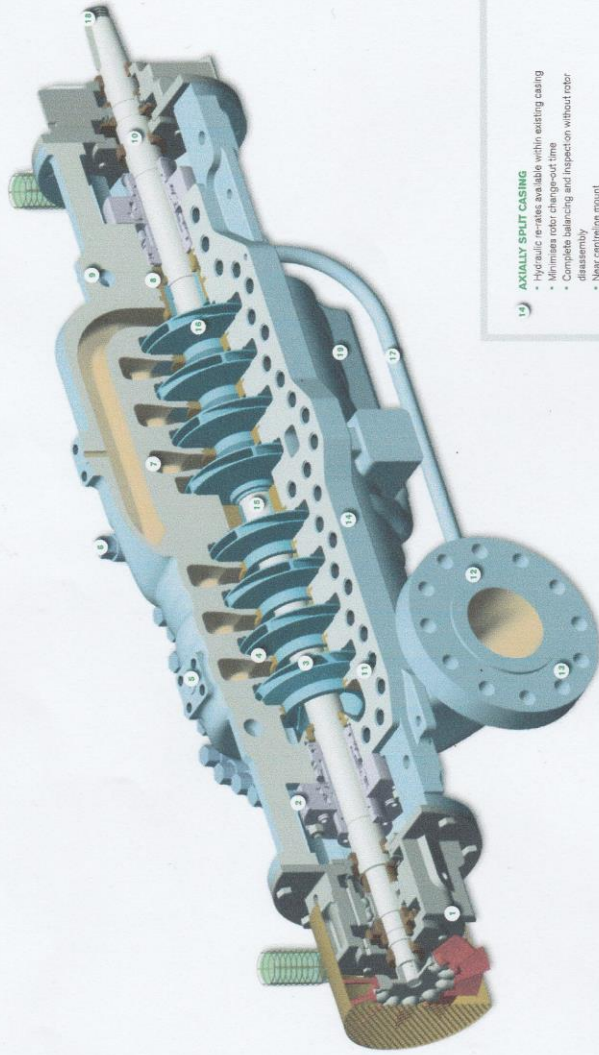
RECORD OF WATER INJECT
WATER INJECTION PLANT

MONTH : JULY 2016

DATE	NEW W.I.P					TOTAL (Bbls)	W.HEAD INJECTION (Bbls)
	FIRST STOCK (Bbls)	RECEIVED (Bbls)	FINAL STOCK (Bbls)	INJECTION (Bbls)			
				Produced Wtr	Fresh Wtr		
1	9,240	2,266	9,420	45,077	2,086	47,163	46,885
2	9,420	1,056	9,365	47,044	1,111	48,155	47,869
3	9,365	2,549	9,400	45,750	2,514	48,264	47,955
4	9,400	2,721	8,950	39,182	1,474	40,656	40,346
5	8,950	2,952	8,695	38,348	3,217	41,565	41,176
6	8,695	3,733	9,240	35,794	3,178	38,972	38,612
7	9,240	454	9,210	39,493	484	39,977	39,627
8	9,210	1,414	9,150	39,182	1,474	40,656	40,346
9	9,150	4,242	9,630	35,510	3,762	39,272	39,978
10	9,630	504	9,575	47,639	559	48,198	47,780
11	9,575	63	8,940	47,643	698	48,341	47,970
12	8,940	1,452	9,380	47,480	1,012	48,492	48,094
13	9,380	467	9,327	47,614	520	48,134	47,682
14	9,327	861	9,279	49,393	909	50,302	49,925
15	9,279	1,313	9,507	48,415	1,085	49,500	49,040
16	9,507	62	8,926	49,852	643	50,495	50,100
17	8,926	3,242	8,982	47,585	3,186	50,771	50,386
18	8,982	4,675	9,030	27,002	4,627	31,629	31,343
19	9,030	5,485	9,250	40,578	5,265	45,843	45,610
20	9,250	1,231	9,340	48,257	1,141	49,398	49,121
21	9,340	2,643	9,450	18,880	2,533	21,413	21,246
22	9,450	4,281	9,480	43,183	4,251	47,434	47,115
23	9,480	1,464	9,440	47,875	1,504	49,379	49,153
24	9,440	1,397	9,520	48,968	1,317	50,285	49,916
25	9,520	636	9,357	49,953	799	50,752	50,285
26	9,357	2,521	9,072	47,980	2,806	50,786	50,343
27	9,072	525	8,950	46,578	647	47,225	46,796
28	8,950	1,964	7,980	46,039	2,934	48,973	48,588
29	7,980	3,682	8,370	44,558	3,292	47,850	47,459
30	8,370	3,739	9,640	40,530	2,469	42,999	42,634
31	9,640	1,853	8,440	43,839	3,053	46,892	46,473
TOTAL		65447	284295	1345221	64550	1,409,771	1,399,853


CUP-BB3 - Features

- 1 **BEARING ASSEMBLY**
 - SKF bearing class leading vibration levels
 - High capacity fit as standard
 - Finger design improves lubrication and prevents "black oil"
 - Pure or purge mist options
- 2 **SEAL CHAMBER**
 - API 682 compliant
 - Space for dual seal
 - Easy seal changeover
 - Locking collar arrangement as standard
- 3 **OPTIMUM INPSH PERFORMANCE**
 - Option for double suction impeller
- 4 **CASE WEAR RINGS + BUSHES**
 - Peak life location
 - Pinned for anti-rotation at split line
- 5 **INTEGRALLY FLANGED AUXILIARY CONNECTIONS**
 - Eliminates weld connection
 - Eliminates need for drilling
 - Conventional options available
- 6 **TOP BOLTED CAP NUTS**
 - Easy access and removal
- 7 **DOUBLE VOLUTE DESIGN**
 - Minimises axial thrust loads for optimised bearing and seal life
- 8 **SINGLE PIECE THROTTLE BUSHING**
 - Designed for pressure breakdown
 - Sized to balance axial thrust
- 9 **HEAVY DUTY LUGS**
 - Rated for full pump weight
- 10 **ROBUST ROTOR DESIGN**
 - Stopped shaft for ease of assembly
 - Optimised rotor dynamics and power transmission capability
- 11 **INTEGRAL WEAR RINGS**
 - Reduces risk of failure due to wear part displacement
 - Retrofit with conventional rings when necessary
 - Conventional options available
- 12 **FLANGE FINISHES + RATING**
 - Heavy duty class D00 as standard
 - Higher pressure options available
 - Raised face and ring type joint options available
- 13 **NOZZLES INTEGRAL IN BOTTOM HALF CASE**
 - No need to remove pipework
 - Helical API 610 nozzle loads





- 14 **AXIALLY SPLIT CASING**
 - Hydraulic crates available within existing casing
 - Minimises rotor change-out time
 - Complete balancing and inspection without rotor disassembly
 - Near centreline mount
- 15 **SPILT CENTRE BUSHING**
 - Facilitates inspection, removal and replacement
 - Maximises rotor support and dampening
- 16 **IMPELLERS**
 - Back-to-back design to minimise axial thrust
 - Individually accurate
 - Precision cast
- 17 **INTEGRAL BALANCE LINE**
 - Equalises pressure in seal cavities
- 18 **API SHAFT TAPER**
 - For easy coupling removal
- 19 **MATERIAL OPTIONS**
 - All API 610 materials options
 - Other material options available
 - NACE compatible
 - Non-magnetic steel parts





PT. DURAQUIPT CEMERLANG
Your Trusted Partner in Industrial Pumps and Valves Solution

PUMP PERFORMANCE TEST MULTY STAGES CENTRIFUGAL PUMP

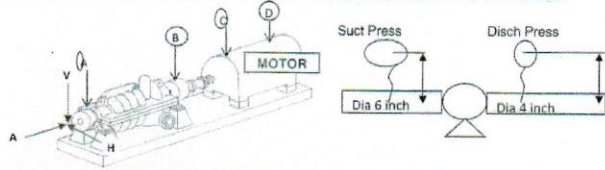
QUALITY ASSURANCE DEPT.

CUSTOMER	PT. PERTAMINA EP	PUMP MANUF.	CLYDEUNION PUMP
END USER	PT.PERTAMINA TANJUNG FIELD	MODEL / SIZE	BB3 (4x6x10.5C) 11 Stg
PROJECT NAME	Produced Water Injection Pump	TOTAL HEAD	FT 3280
SO No.	13A00712	FLOW RATE	GPM 875
TAG. No.	TJG-P-0048/01	RPM	2980
PUMP S/N	OE.30023758-01-002	IMPELLER DIA	10.875"-11"

MOTOR DATA

Brand	ABB Stromberg drives	hz	50	Power Fact	0.90
Frame		Rpm	2972	Amp	85
Type	AMA 400L2WBSH	Ph	3	Efficiency	95.8
Hp	1120	Volt	6800	s/n	

Note : V : Vertical
H : Horizontal
A : Axial



TEST DATA

No	Time	Flowrate (Gpm)	Pump Speed	Disch Press (Psi)	Suct Press (Psi)	Head (Ft)	Motor Ampere	BHP (Hp)	HHP (Hp)	Efficient cy (%)	Temp (°C)			
											Pump		Motor	
1	12.45	890	2988	1450	59	3312	74	979.1	744.4	76.03	DE 75.0	NDE 70.0	DE 56.0	NDE 55.0
2	13.15	890	2987	1450	59	3312	74	979.1	744.4	76.03	83.0	75.0	66.0	63.0
3	13.45	890	2982	1450	59	3312	74	979.1	744.4	76.03	84.0	76.0	70.0	66.0
4	14.15	890	2982	1450	59	3312	74	979.1	744.4	76.03	84.0	76.0	72.0	68.0

Performance certificate

Flow	Head	Eff	BHP
1	0	3822	0
2	439	3706	59
3	680	3570	72
4	870	3316	78
5	1044	3006	79
6	1249	2585	78

Start 12.40 (19/03/2015) / Finish 16.00 (20/03/2015)

Liquid : Produce water / specific gravity-normal 0.97 - 1.02




Suction Pressure max./rated : 50 / 20 Psig

Discharge Pressure 1440 PSI

Temp pump : 40 - 60 deg C

DE/ Inboard : Set alarm hearing at control panel 99 deg C and Trip 104 Deg C

NDE/ Outboard : Set alarm hearing at control panel 99 deg C and Trip 104 Deg C

Tested by	Approved by	Witness by	RESULT <input checked="" type="checkbox"/> ACCEPTED <input type="checkbox"/> NOT ACCEPTED
			
Name : Deni maulana	Name : FAHMI H.H	Name : VANI	
Date : 22 March 2015	Date : 23.3.2015	Date : 22.03.2015	

Rev 1. Shown individual pump sketch 2. Addde temperature & noise measurement

Form No. QA-F-18 Rev.2

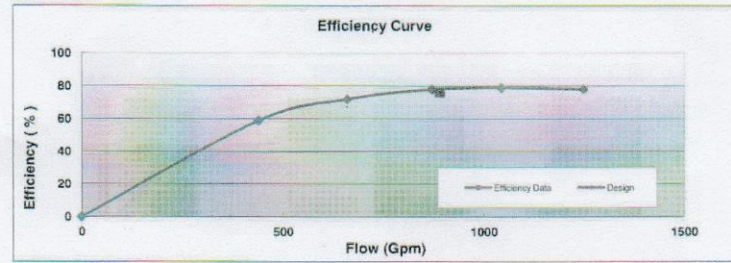
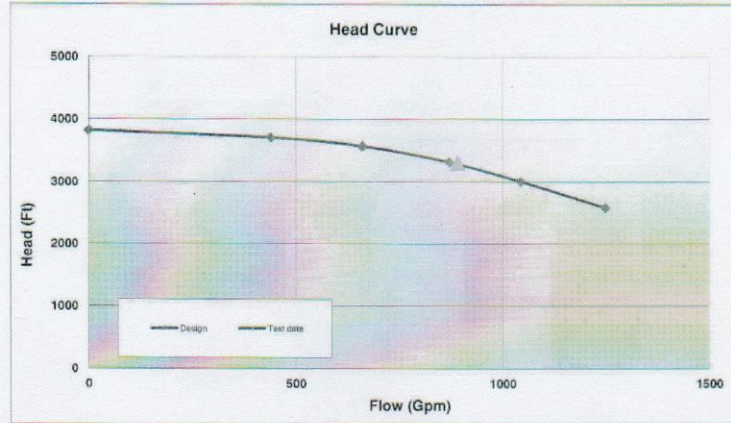


PT. DURAQUIPT CEMERLANG
Your Trusted Partner in Industrial Pumps and Valves Solution



PUMP CURVE

Tag No. TJG-P-0048/01



HV Modular motors

6000 V - 50 Hz

Technical data for totally enclosed squirrel
cage three phase motors

IP 55 - IC 611 - Insulation class F, temperature rise class B

Output kW	Motor type	Product ID	Speed r/min	Efficiency		Power factor		Current			Torque			Rotor inertia kgm ²	Motor weight kg	Sound pressure level L _w dB(A)
				Full load 100%	3/4 load 75%	Full load 100%	3/4 load 75%	I _N A	I _R A	I ₀ A	T _N Nm	T ₀ Nm	T _{max} Nm			
3000 r/min = 2 poles				6000 V 50 Hz												
630	AMA 400L2A	79	2977	95.0	94.9	0.86	0.84	74	5.1	21	2021	0.5	2.2	7.0	2960	85
710	AMA 400L2A	80	2977	95.3	95.3	0.86	0.85	83	5.2	23	2277	0.5	2.2	7.5	3070	85
800	AMA 400L2A	81	2977	95.6	95.6	0.87	0.86	92	5.3	24	2566	0.6	2.2	8.0	3190	85
900	AMA 400L2A	82	2977	95.8	95.8	0.87	0.86	104	5.3	26	2887	0.6	2.2	8.4	3300	85
1000	AMA 400L2A	83	2979	96.0	96.0	0.87	0.85	115	5.5	31	3206	0.6	2.3	8.9	3410	85
1120	AMA 450L2A	84	2979	96.1	96.0	0.86	0.85	130	5.0	35	3590	0.5	2.1	11.6	4220	86
1250	AMA 450L2A	85	2980	96.3	96.2	0.84	0.82	149	5.0	43	4005	0.5	2.1	12.3	4350	86
1400	AMA 450L2A	86	2982	96.5	96.4	0.84	0.82	166	5.1	47	4484	0.5	2.2	13.8	4650	86
1600	AMA 500L2A	87	2985	96.4	96.3	0.87	0.85	184	5.3	52	5118	0.4	2.2	20.9	5250	87
1800	AMA 500L2A	88	2986	96.6	96.5	0.88	0.86	205	5.4	56	5757	0.4	2.2	22.3	5460	87
2000	AMA 500L2A	89	2986	96.8	96.7	0.87	0.85	228	5.4	64	6396	0.4	2.2	23.6	5640	87
2240	AMA 500L2A	477	2986	96.9	96.9	0.88	0.87	252	5.4	64	7164	0.5	2.2	26.2	6010	87
1500 r/min = 4 poles				6000 V 50 Hz												
630	AMA 400L4A	90	1486	95.0	95.1	0.88	0.86	73	4.8	21	4049	0.6	1.9	15.4	2990	79
710	AMA 400L4A	91	1487	95.3	95.4	0.86	0.83	84	5.4	29	4558	0.7	2.2	16.3	3080	79
800	AMA 400L4A	92	1487	95.5	95.6	0.86	0.84	93	5.3	31	5136	0.7	2.1	17.3	3180	79
900	AMA 400L4A	93	1487	95.7	95.8	0.86	0.83	105	5.4	34	5778	0.7	2.2	18.3	3280	79
1000	AMA 400L4A	94	1488	95.9	95.9	0.85	0.82	118	5.6	42	6417	0.7	2.3	19.3	3380	79
1250	AMA 450L4A	96	1488	95.9	95.9	0.87	0.85	144	5.5	43	8023	0.7	2.1	31.1	4150	81
1400	AMA 450L4A	97	1488	96.1	96.2	0.88	0.86	160	5.4	45	8985	0.7	2.0	34.4	4410	81
1600	AMA 500L4A	98	1491	96.0	96.0	0.88	0.87	181	5.5	49	10249	0.7	2.0	52.1	5310	82
1800	AMA 500L4A	99	1491	96.2	96.2	0.89	0.87	203	5.5	53	11531	0.7	2.0	55.0	5470	82
2000	AMA 500L4A	100	1491	96.3	96.4	0.88	0.86	227	5.5	62	12811	0.7	2.0	57.7	5630	82
2240	AMA 500L4A	101	1491	96.5	96.6	0.88	0.86	255	5.6	70	14344	0.7	2.1	63.2	5950	82
2500	AMA 500L4A	479	1490	96.6	96.7	0.88	0.86	284	5.5	75	16020	0.8	2.0	66.0	6130	82

Data presented in rating lists are typical values.
Guaranteed values on request. All engineered motors
are optimized for the specified application. Accurate
motor data will be given on request at quotation phase.
Legally binding performance and specification data is
given to the end user once each order is confirmed.



Technology leading industrial drive for a broad range of applications

ACS2000 highlights

- Suitable for use with or without an input isolation transformer
- Available as low harmonic or regenerative drive
- Market specific design to comply with IEC and NEMA specific industry standards
- Flexible connectivity and various options offer an optimum solution for different applications

Features

- Power range 250 to 3200 kW (4.0 to 6.9 kV)
- Air cooling
- Available for transformerless operation allowing a direct connection to the line supply (direct-to-line), for connection to an external input isolation transformer or with an integrated transformer
- Available as a low harmonic drive for optimal low harmonic performance or as a regenerative drive for enhanced active braking and power factor correction
- For induction motors
- Two line side connection configurations, the diode front end (DFE) and the active front end (AFE)
- Optional output sine filter for pure sinusoidal output voltage and current outputs
- EN, IEC, CE, NEMA, IEEE and UL certifications

For further information, see catalog "ACS2000", code: 3BHT490640R0001.

Improving energy efficiency is the fastest, the most sustainable and the cheapest way to reduce greenhouse gas emissions.



Introduction

Low voltage drives

Motor control drives

Medium voltage drives

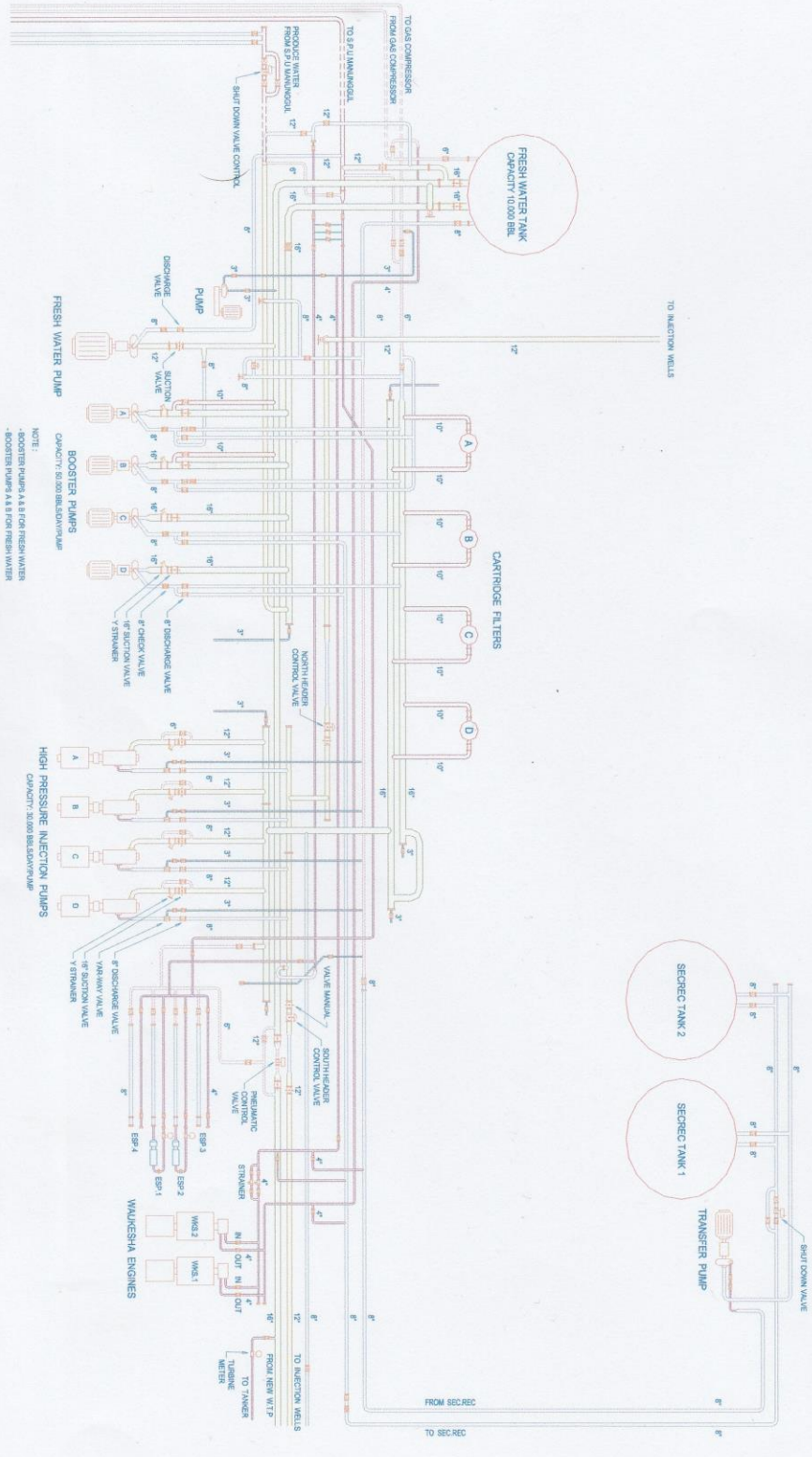
DC drives

Power controller

PLCs

Connectivity and software

Drive services

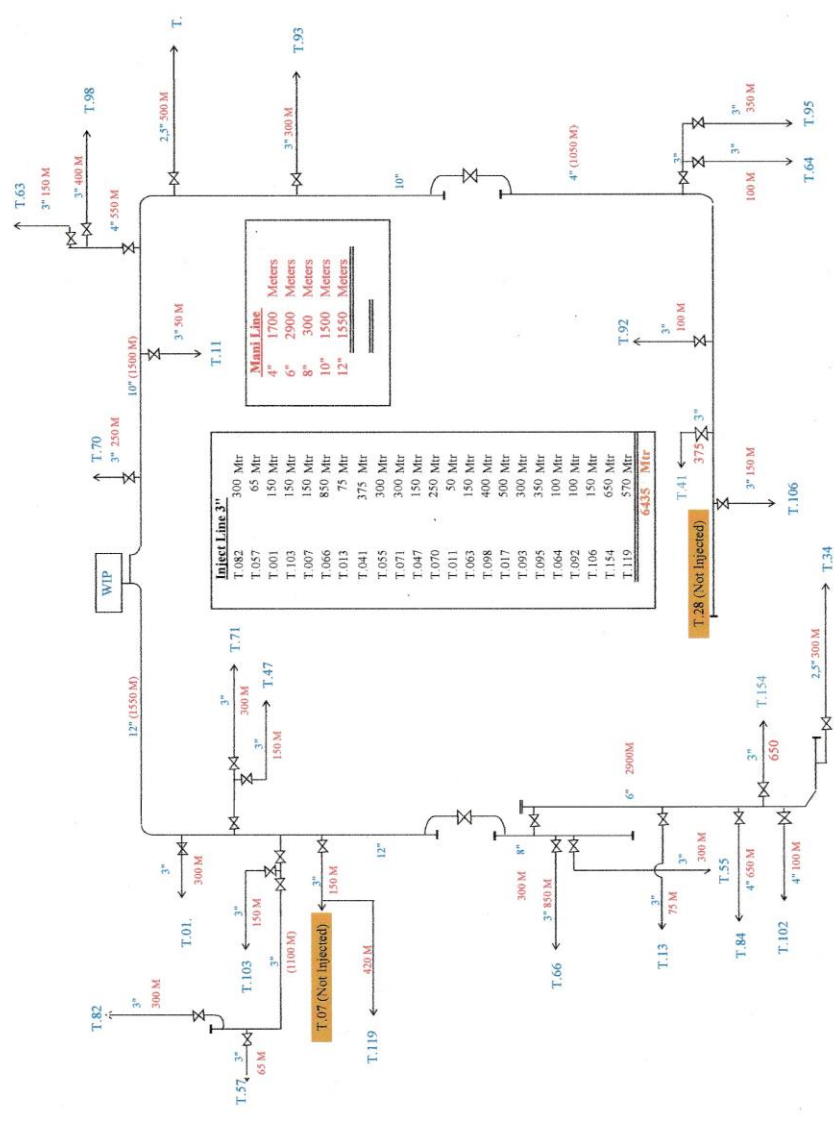


NOTE:
 - BOOSTER PUMPS A & B FOR FRESH WATER
 - BOOSTER PUMPS C & D FOR FRESH WATER

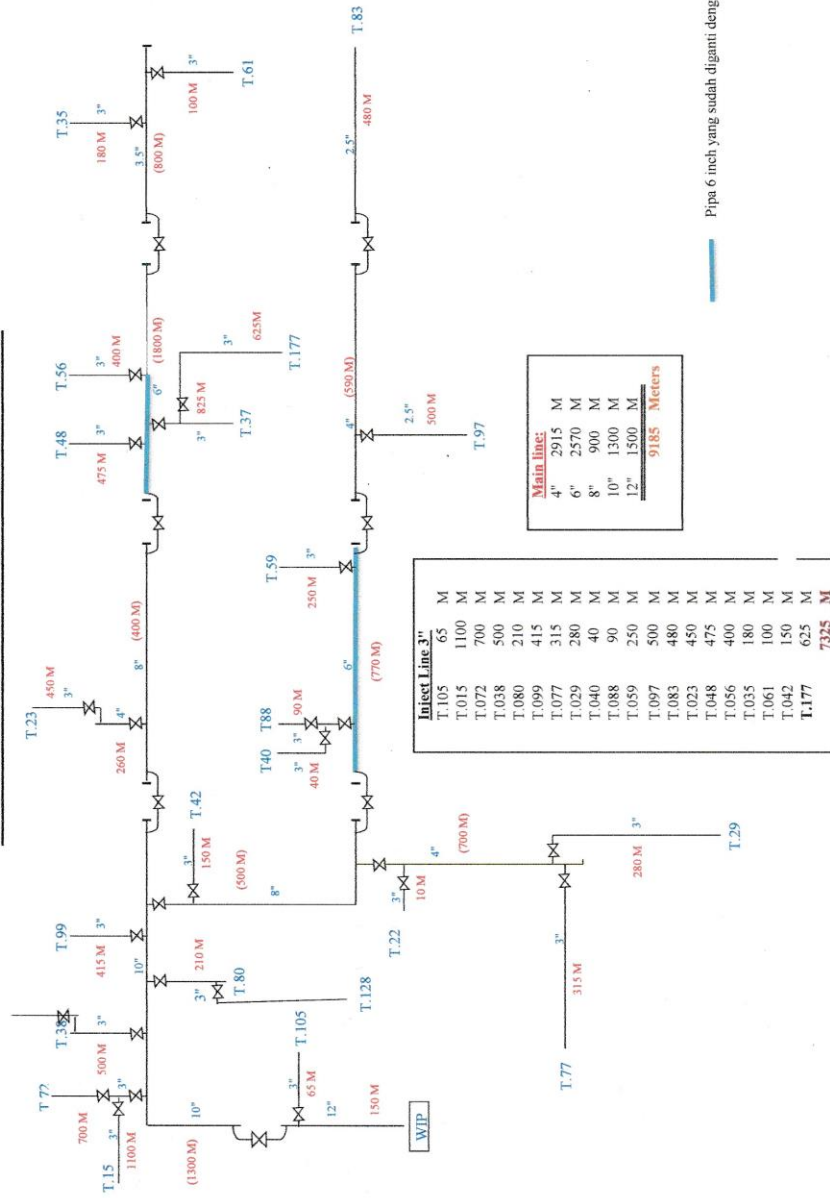
NOTE:
 CAPACITY: 20,000 BBL/DAY/PUMP

NOTE:
 CAPACITY: 20,000 BBL/DAY/PUMP

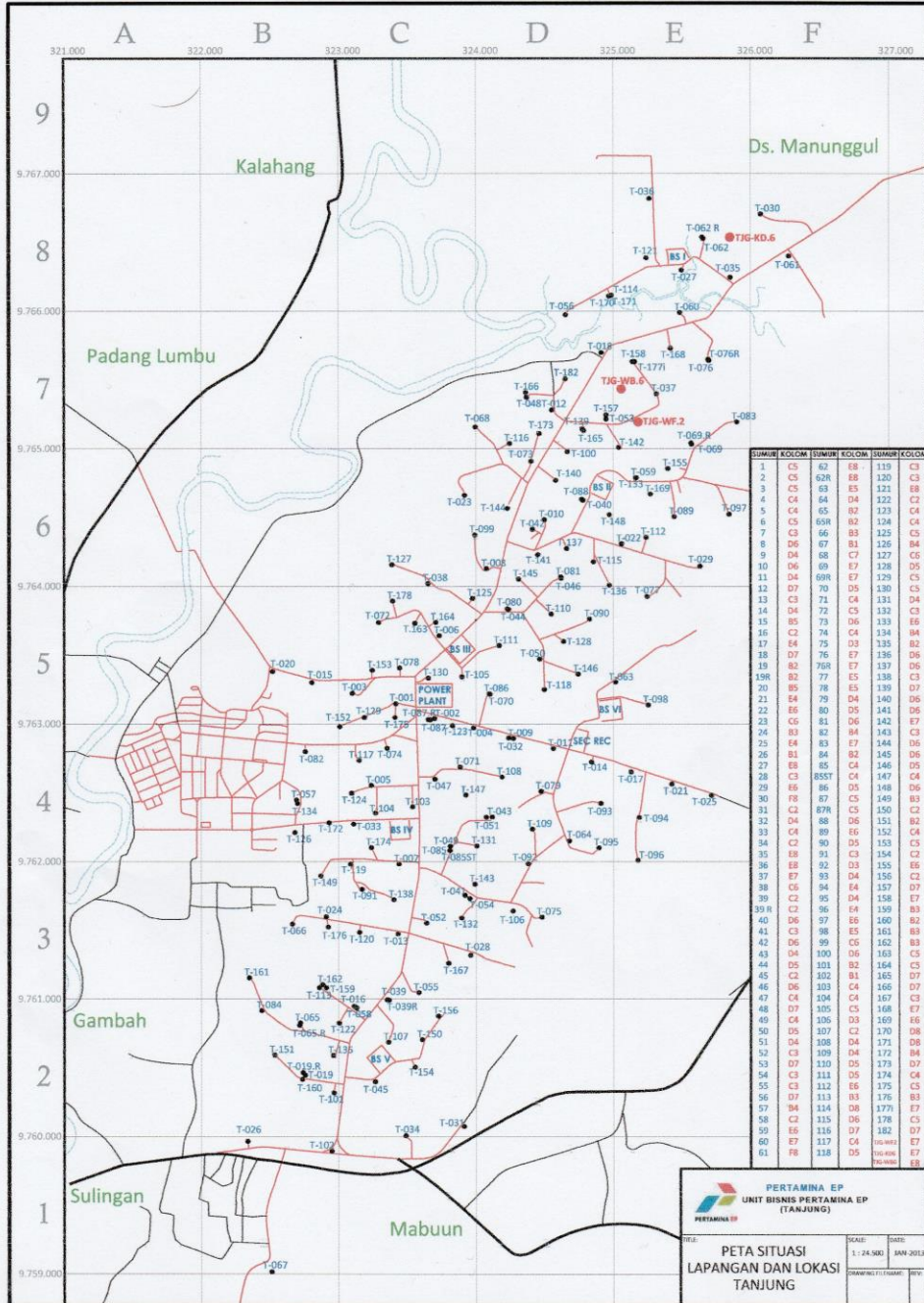
LAY OUT SOUTH HEADER INJECTION LINE




LAYOUT NORTH HEADER INJECTION LINE



Pipa 6 inch yang sudah diganti dengan pipa baru 6", sch 80




PERTAMINA EP
 UNIT BISNIS PERTAMINA EP
 (TANJUNG)

NO. :
PETA SITUASI
LAPANGAN DAN LOKASI
TANJUNG

SKALA : 1 : 24.500
 DATE : JAN 2013
 DRAWING / NAME :